UNITED STATES DEPARTMENT OF AGRICULTURE
Cotton Ginning Laboratories

Bureau of Agricultural Engineering ---- Bureau of Agricultural Economics

REMBERT-TYPE FAN AND LOW-TOWER SEED-COTTON DRYING SYSTEMS

Suitability: This system of drying is recommended for 1- and 2-story ginneries having from 2 to 5 gin stands and any kind of distributor except pneumatic. It may employ the old suction separator by converting it into a receiving or blow box, provided that the screen surface therein has at least 12 square feet area. If a new blow box is used, a suction separator is entirely eliminated.

References: See the following U.S. Department of Agriculture publications: Miscellaneous Publication 314, "Overhead Cleaner Driers"; Farmers' Bulletin 1802, "Modernizing Cotton Gins"; and Miscellaneous Publication 239, "The Vertical Drier for Seed Cotton".

Construction of Driers: All towers are 48 inches wide by 63 inches long inside, with floors 15 inches apart. The floor details are shown in figs. 2 and 3 of M.P. 239; the top inlet in fig 4; heaters in figs. 8-13; and steam piping in fig. 14.

Fans, Piping and Vent: The hot air fan should supply from 3,500 to 5,000 cubic feet of air per minute at temperatures up to 220 degrees F., which when mixed with the cold air and damp cotton from the wagon, will have a resultant drying temperature of approximately 160 degrees F. Piping sizes are indicated on the above diagram. The vent pipe should be from 32 to 36 inches in diameter. The screen in the return box should slope at 30 degrees and be removable. It should have an area of not less than 12 square feet and be of a $2\frac{1}{2}$ x $2\frac{1}{2}$ inch mesh or finer. The piping may be

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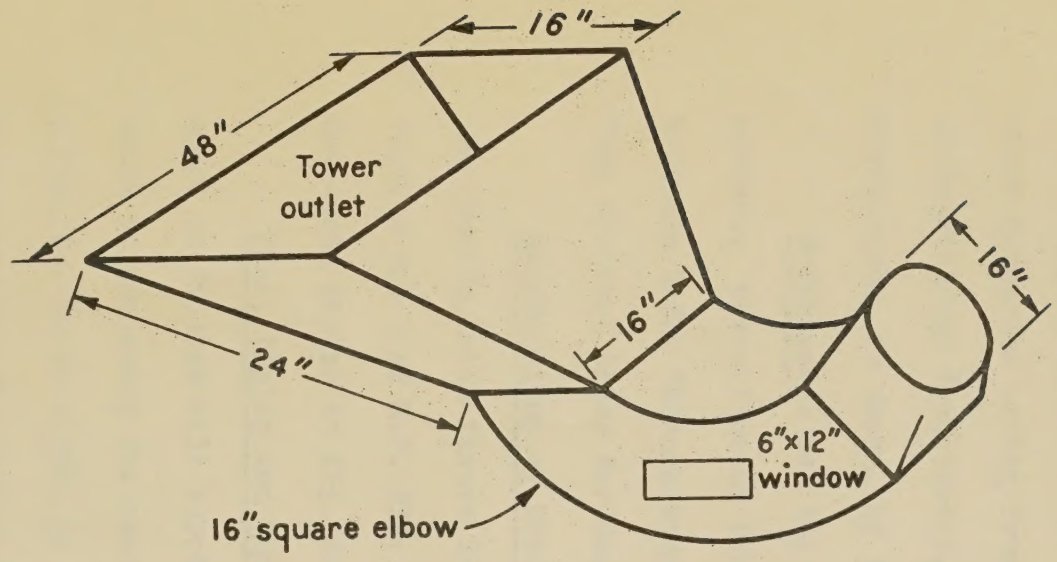
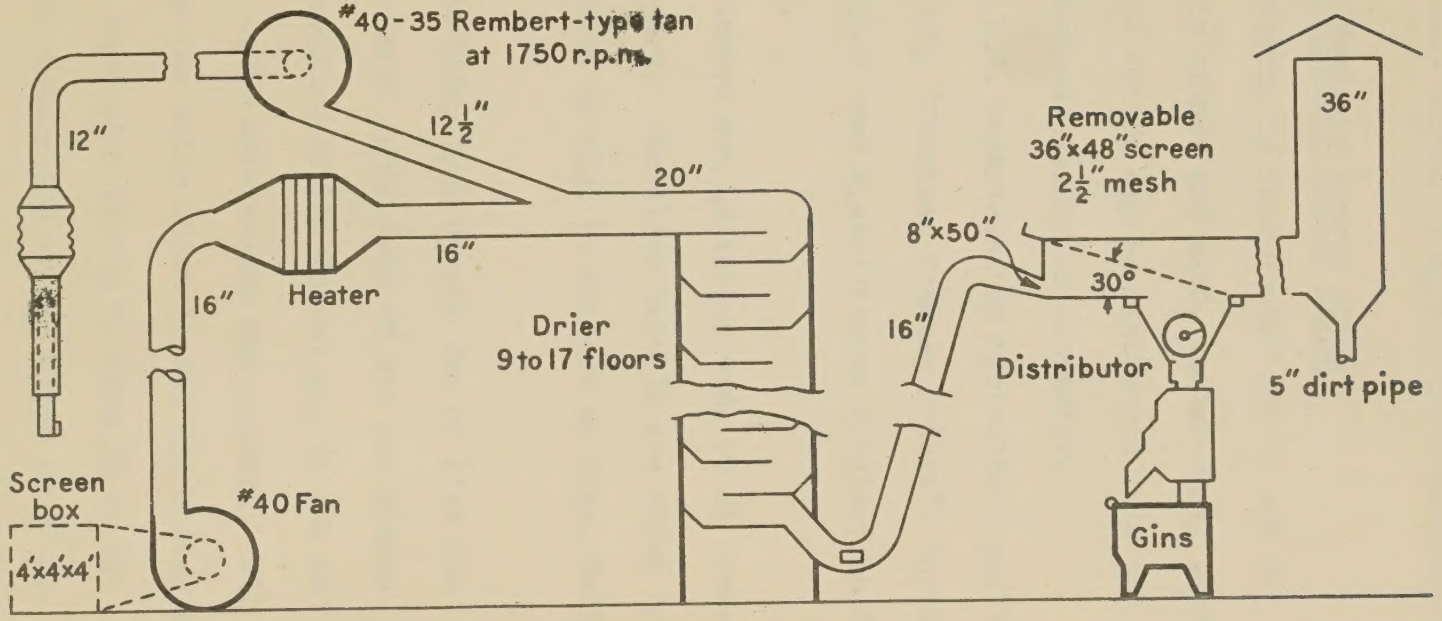
REMBERT-TYPE FAN AND LOW-TOWER SEED-COTTON DRYING SYSTEMS. (Continued.)

arranged for bypassing the tower when desired; employing a valve at the rembert-type fan discharge, and a wye at the inlet of the transition to the screened blow box over the distributor.

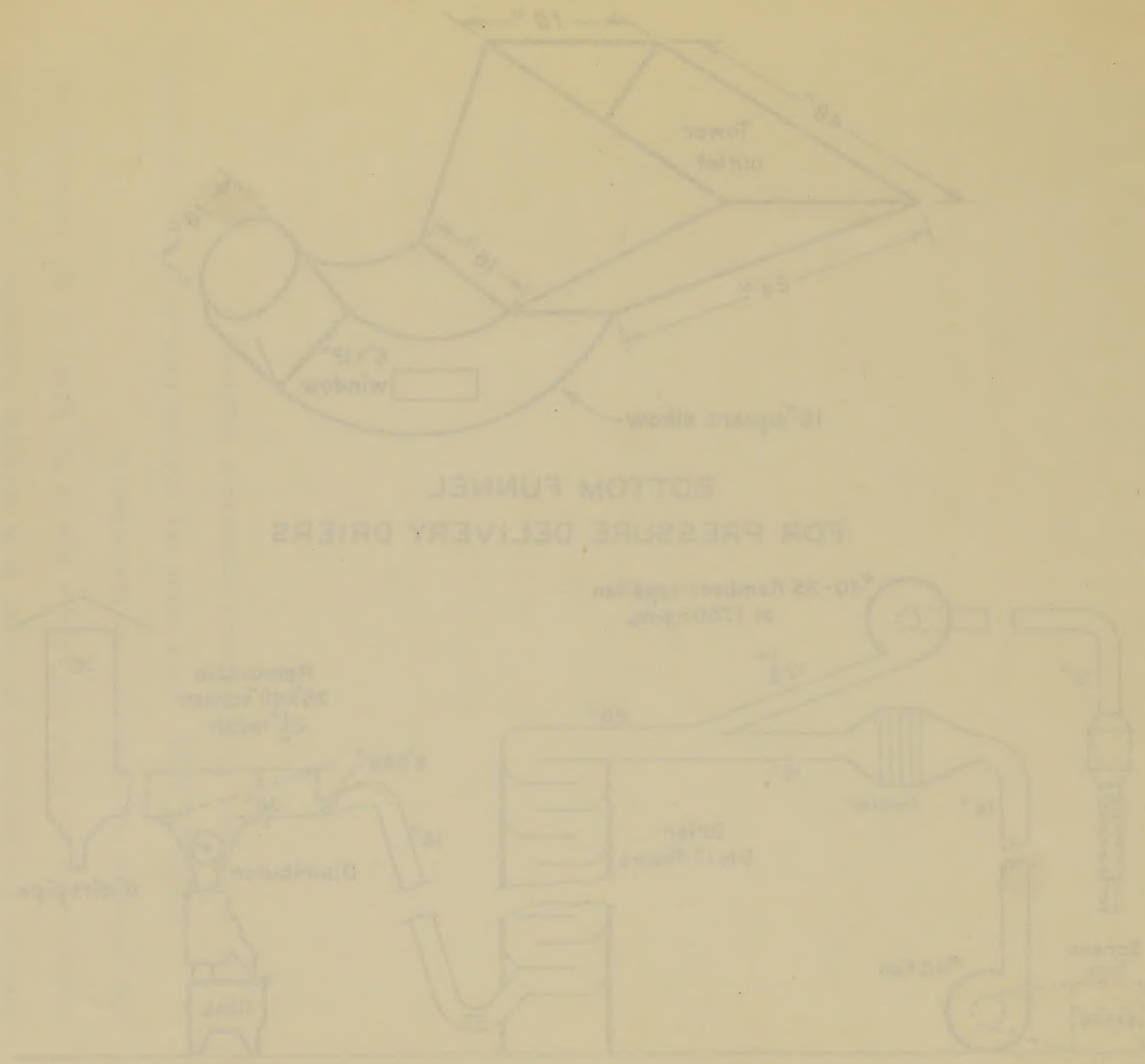
Source of Heat: This drier may utilize heat from steam radiation, or the waste heat from internal combustion engines.



BOTTOM FUNNEL
FOR PRESSURE DELIVERY DRIERS



REMBERT-TYPE FAN AND PRESSURE TOWER SYSTEM



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U.S.D.A. LOW-TOWER PRESSURE COTTON DRIER

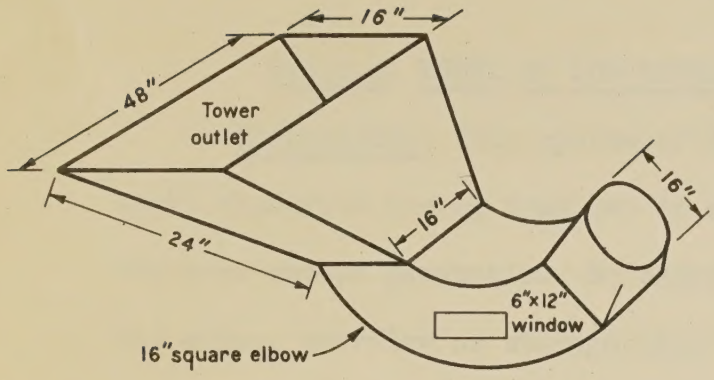
Suitability: This system of drying is recommended for 1- and 2-story ginneries having from 2 to 5 gin stands and good, sealed-wheel separators with any distributor. The dried cotton may be discharged into the distributor, as shown, or into an overhead cleaner or extractor.

References: See the following U.S. Department of Agriculture publications: Miscellaneous Publication 314, "Overhead Cleaner Driers"; Farmers' Bulletin 1802, "Modernizing Cotton Gins"; and Miscellaneous Publication 239, "The Vertical Drier for Seed Cotton".

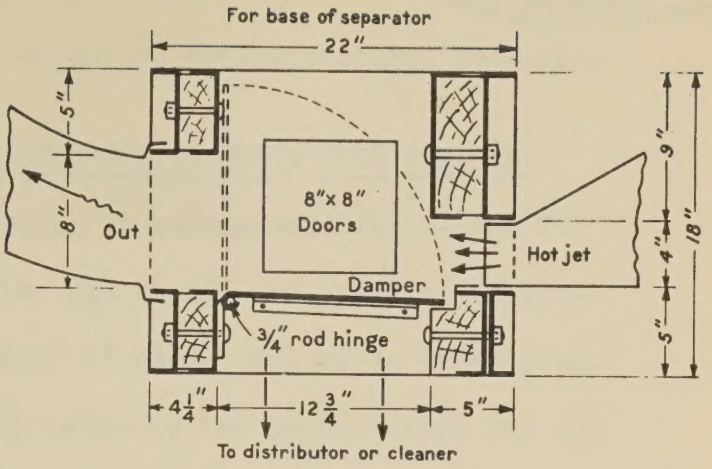
Construction of Driers: All towers are 48 inches wide by 63 inches long inside, with floors 15 inches apart. The floor details are shown in figs. 2 and 3 of M.P. 239; the top inlet in fig. 4; heaters in figs. 8-13; and steam piping in fig. 14.

Fans, Piping and Vent: An 18-blade, Type C, gin fan of size and speed as follows will supply 5,000 or more cubic feet of air per minute which is necessary for successful operation of the drier: No. 35 fan at 1,750, No. 40 at 1,500, or No. 45 at 1,400 revolutions per minute. All cotton and hot air piping to and from the drier shown in the above diagram, is to be 16 inches in diameter. The vent pipe should be from 32 to 36 inches in diameter. The screen in the return box should slope at 30 degrees and be removable. It should be not less than 36 x 48 inches (i.e., have 12 square feet of surface) and the mesh should be $2\frac{1}{2}$ x $2\frac{1}{2}$ or finer.

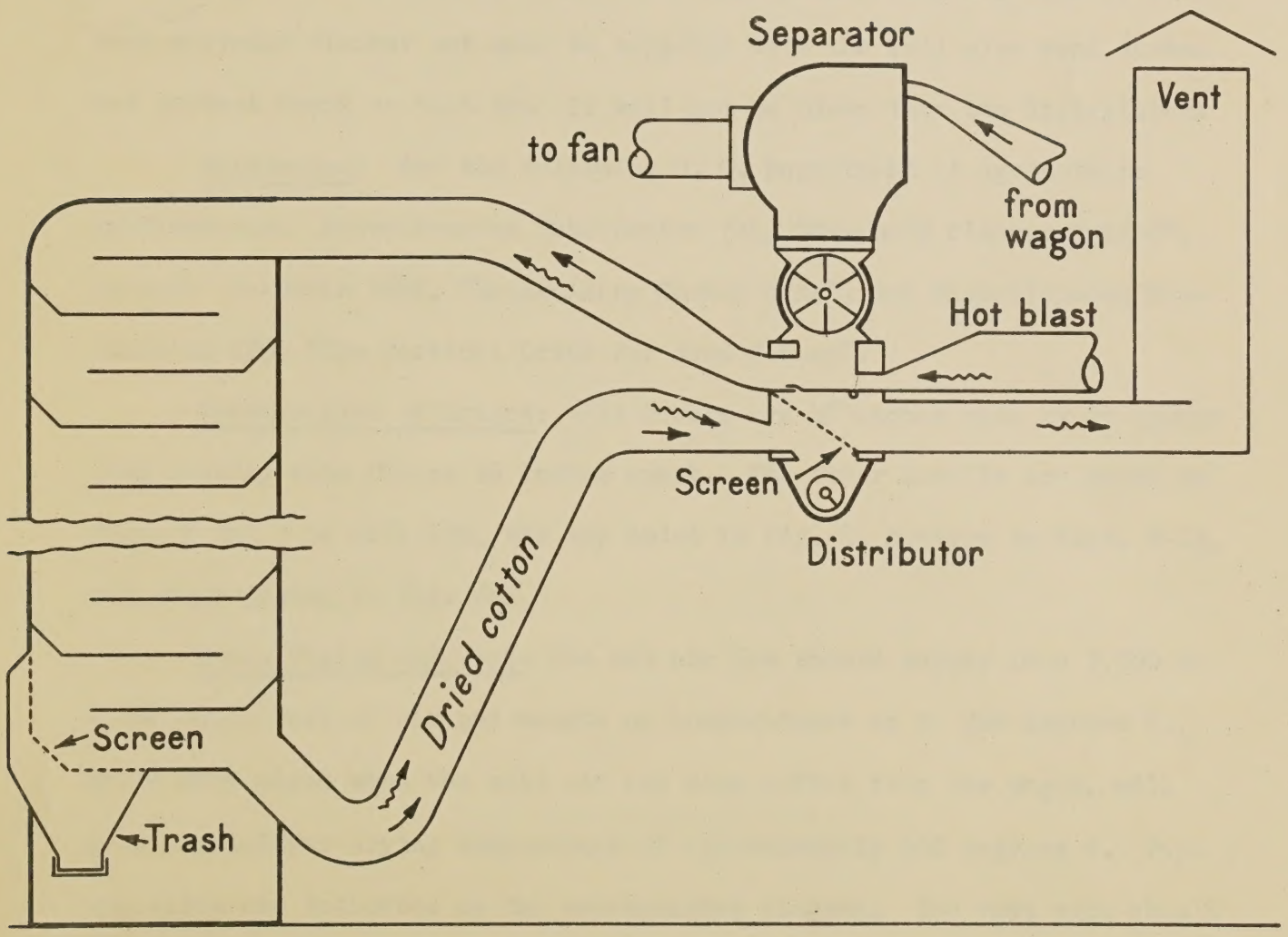
Source of Heat: This drier may utilize heat from steam radiation, or the waste heat from internal combustion engines.



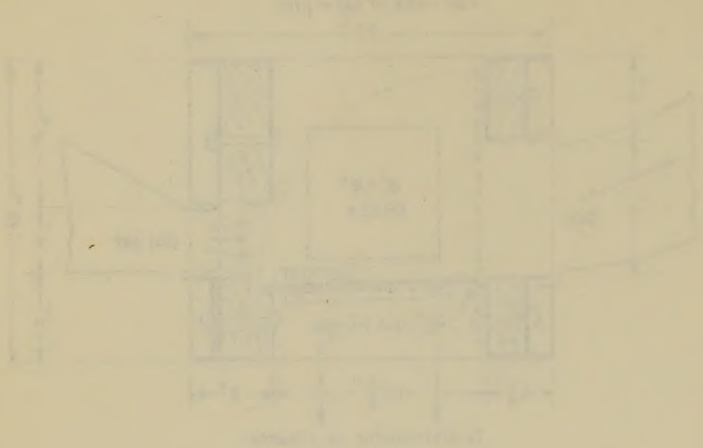
BOTTOM FUNNEL
FOR PRESSURE DELIVERY DRIERS

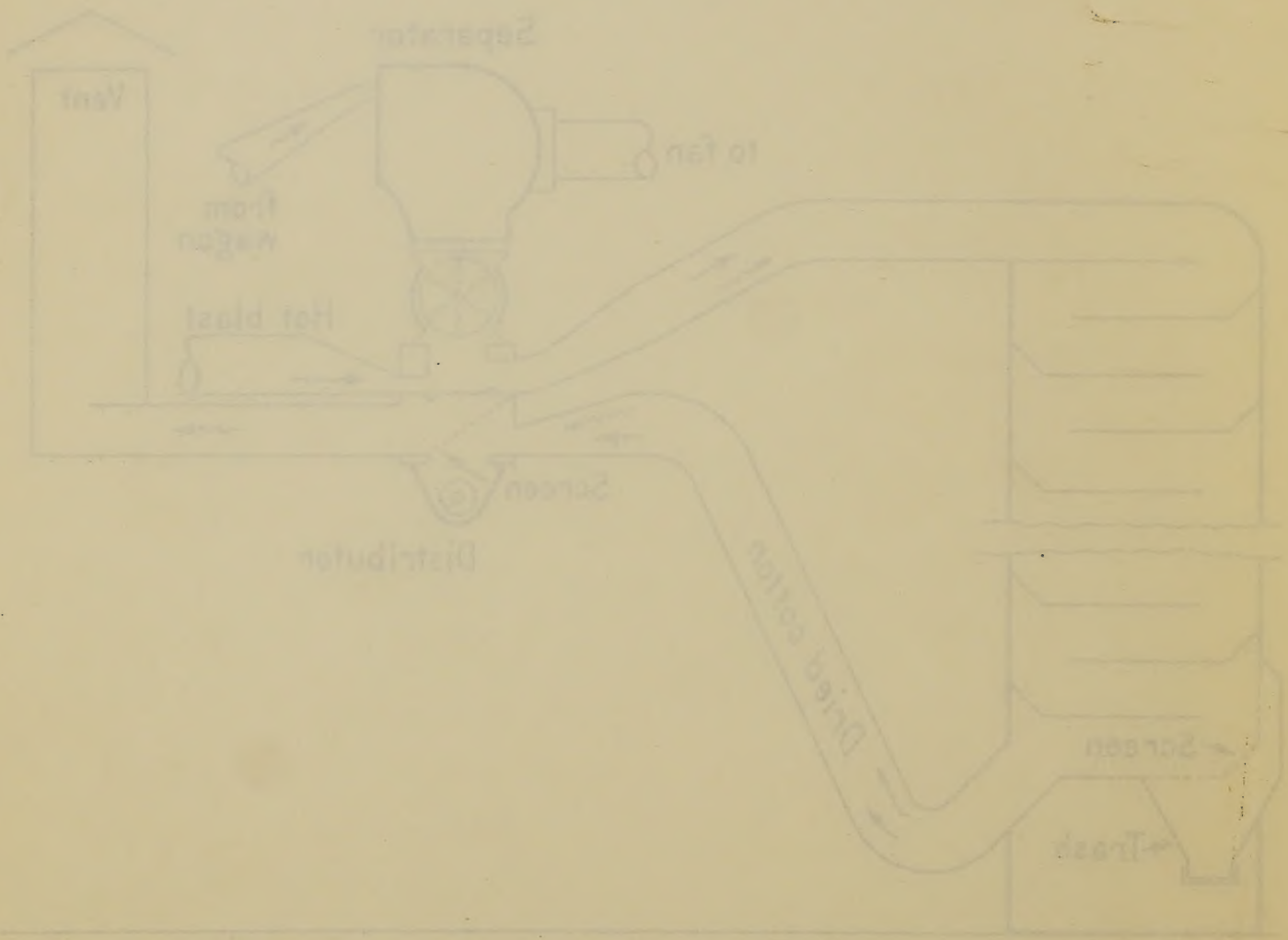


CROSS-BLOW BOX



U.S.D.A. LOW-TOWER PRESSURE COTTON DRIER





U.S.D.A. LOW-TOWER PRESSURE COTTON DRIER

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U.S.D.A. MODEL HY LOW-TOWER SEED-COTTON DRIER OVER CLEANER

Suitability: This system of drying is recommended for 1- and 2-story ginneries having from two to five gin stands and any kind of distributor except pneumatic. No separator is used. Cotton is drawn from the wagon, overflow or storage bins by means of the Rembert-type fan and discharged into the special wye to mix with the continuous blast of hot air coming from the heater. This drier may be used with any kind of overhead cylinder cleaner but must be supplied with the full size vent screen and exhaust trunk so that hot air will not be blown into the distributor.

References: See the following U. S. Department of Agriculture publications: Miscellaneous Publication 314, "Overhead Cleaner Driers"; Farmers' Bulletin 1802, "Modernizing Cotton Gins"; and Miscellaneous Publication 239, "The Vertical Drier for Seed Cotton".

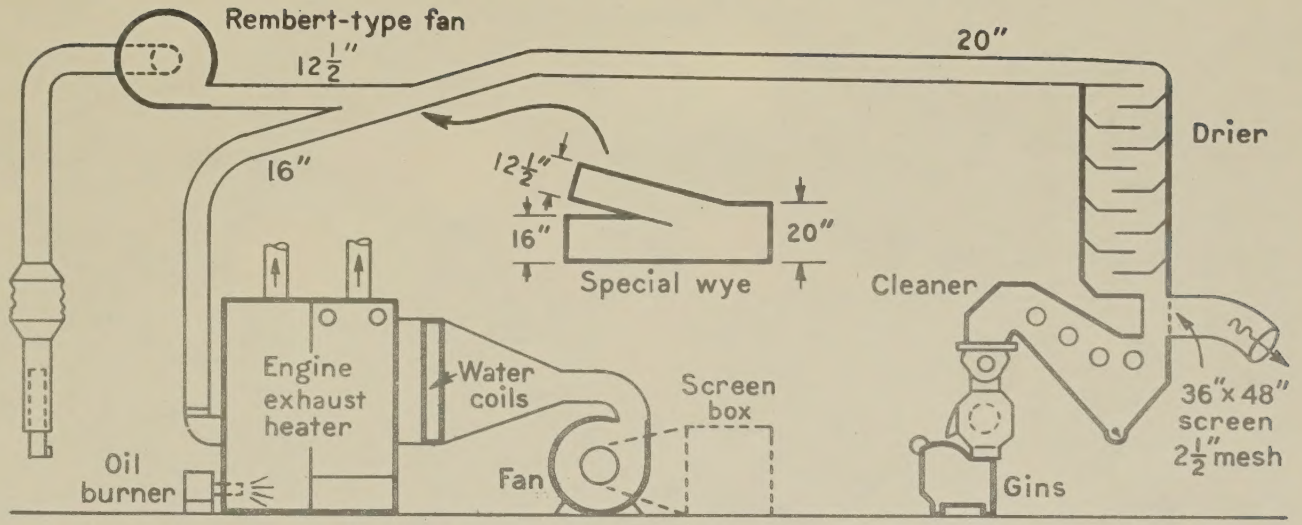
Construction of Driers: All towers are 48 inches wide by 63 inches long inside, with floors 15 inches apart. The floor details are shown in figs. 2 and 3 of M.P. 239, the top inlet in fig. 4, heaters in figs. 8-13, and steam piping in fig. 14.

Fans, Piping and Vent: The hot air fan should supply from 3,500 to 5,000 cubic feet of air per minute at temperatures up to 220 degrees F., which when mixed with the cold air and damp cotton from the wagon, will have a resultant drying temperature of approximately 160 degrees F. Piping sizes are indicated on the accompanying diagram. The vent pipe should

U.S.D.A. MODEL HY LOW-TOWER SEED-COTTON DRIER OVER CLEANER. (Continued.)

be from 32 to 36 inches in diameter. The vent screen at the base of the tower should have an area of not less than 12 square feet and should be so placed that the stream of dried cotton will keep the screen surface clean at all times.

Source of Heat: This drier may utilize heat from steam radiation, or the waste heat from internal combustion engines.



ENGINE-WASTE-HEAT DRYING SYSTEM, MODEL HY